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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/045,732	03/20/1998	CARL W. FULLER	233/127	1331

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EXAMINER	
MORAN, MARJORIE A	

ART UNIT	PAPER NUMBER
1631	

DATE MAILED: 05/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/045,732	FULLER ET AL.	
	Examiner	Art Unit	
	Marjorie A. Moran	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16 and 19-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,13-16 and 19-22* is/are rejected.

7)☒ Claim(s) *12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/26/04 has been entered. Claims 1-16 and 19-22 are pending. All rejections and objections not reiterated below are hereby withdrawn in view of applicant's arguments and amendments filed 1/26/04.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 21 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 21 and 22 limit a molecule to be a compound. A compound is generally defined in the art as a product comprising multiple molecules or oligomers (e.g. a protein is a compound, comprised of multiple peptides). A molecule MAY be defined as a compound, but generally is not. A compound may be limited to comprise particular molecules, and a molecule may be limited to comprise particular atoms (e.g. in a 3-D structure); however, a molecule is not usually limited to comprise a compound. If applicant intends to limit the molecule to BE a compound, then it is unclear what further limitation of the parent claims is intended by such a limitation. As the limitation intended by applicant is unclear, claims 21 and 22 are indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 4, 7, 9, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by OKADA et al. (IDS ref: Nuc. Acids Res. (1978) vol. 5 (7), pp. 2289-2296).

OKADA teaches 7-aminomethyl- 7-deazaguanosine, isolated from RNA (p. 2289), thus anticipating claims 1-2, 4, 7, 9, and 20.

Claim 16 is rejected under 35 U.S.C. 102(b) as being anticipated by NISHIMURA et la. (US 4,435,569).

NISHIMURA teaches a substituted deazaguanosine wherein a substituent (equivalent to instant R1) may be an aminomethyl group (col. 2, structure II), thereby anticipating claim 16.

Claims 10-11, 13, 15, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Gilead Sciences, Inc (PCT publication W0 93/09127, 5/13/93, IDS reference AE).

Applicant's arguments filed 1/26/04 have been fully considered but they are not persuasive. In response to the argument that Gilead Sciences does not teach substituted alkyl groups, it is noted that the instant claims recite *optional* substituents. In response to the

argument that Gilead Sciences does not specifically teach 7-ethyl or 7-propyl groups, it is noted that Gilead Sciences teaches a C1-4 alkyl, which encompasses methyl, ethyl, propyl, and butyl groups. This is not a large genus, and one skilled in the art would easily have envisioned the 4 structures described without needing any particular motivation to do so. For these reasons, the rejection is maintained.

Gilead Sciences, Inc (PCT publication W0 93/09127, 5/13/93, IDS reference AE) teaches on page 7 a chemical analog (analog II) of the same structure as the molecule of formula II disclosed in the instant claims. The R5 group of analog II corresponds to the R1 group of the molecule of formula II in which the R5 group of analog II described by Gilead Sciences is a lower alkyl (1-4C). The R1 group of the molecule of formula II recited in the claimed molecule is a C_{1-10} alkyl group *optionally* substituted by hydroxyl, amino, C_{1-4} alkoxy or halo as recited in Claim 20, for example. Analog II disclosed by Gilead Sciences encompasses the claimed molecules of both claim 10 and 11 in the present invention, wherein R5 is an ethyl group or propyl group, respectively. Also, Gilead Sciences discloses the incorporation of analogs of structural formula II, wherein R5 is hereinbefore described, into oligomers designed for triple-helix formation with a complementary duplex DNA strand thus anticipating claims 13 and 15 in which the base of the same structure as that described by Gilead is used in a deoxyribonucleic acid sequence. Further, the oligonucleotides or oligomers of Gilead include DNA or RNA (page 10, lines 14-21).

Claim 19 is rejected under 35 U.S.C. 102(a) as being anticipated by RAMSAEVA et al. (IDS ref: Helv. Chim. Acta (1997) vol. 80, pp. 1809-1822).

RAMZAEVA teaches a variety of 7-alkynyl-7-deaza-2'-deoxyguanosine structures wherein the alkynyl group is substituted with amino-substituted alkyl groups and the group

corresponding to instant group R7 is a phosphate (structure B on p. 1820), thus anticipating claim 19.

Claim 19 is rejected under 35 U.S.C. 102(e) as being anticipated by SEELA et al. (US 5,844,106, filed 11/6/1995).

SEELA teaches a compound of formula VII wherein substituent E (equivalent to instant R3 of formula III) may be a C2-C10 alkynyl substituted by halogens (col. 17, lines 24-54), thus anticipating claim 19.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-11, 13-16 and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over SEELA et al. (US 5,844,106, filed 11/6/1995) in view of OKADA et al. (IDS ref: Nuc. Acids Res. (1978) vol. 5 (7), pp. 2289-2296).

Applicant's arguments with respect to claims 1-11 and 13-16 have been considered but are moot in view of the new ground(s) of rejection.

SEELA teaches a compound of formula V wherein F, a, Yb, and V may be oxygen, E and R16 may be an amine group, R1 may a phosphate group, R2b may be a hydrogen or hydroxyl, and R15 may be a C1-10 alkyl (col's 12-14). See also col. 17, formula VII. SEELA teaches that his formulae may be substituted at the 7-position by a variety of substituents (col. 18, lines 23-55). SEELA further teaches that his compounds may be used to sequence nucleic acids using amplification methods (col. 16, lines 43-65), teaches use of his compounds in oligonucleotide synthesis (i.e. elongation, col. 18, lines 15-22), and teaches synthesis of his compounds including steps of protecting and redox reactions (col. 17, lines 15-21). SEELA does not specifically teach a compound with a substituted alkyl group and the 7-position.

OKADA teaches 7-aminomethyl- 7-deazaguanosine, as set forth above.

It would have been obvious to one of ordinary skill in the art at the time of invention to have used a 7-aminomethyl group, as taught by OKADA, as the R15 substituent in the compound and method of SEELA, where the motivation would have been to introduce a substituted amine derivatives and/or electron-supplying substituents, as taught by SEELA as being desirable (col. 18, lines 38-55). One skilled in the art would reasonable have expected success in using the 7-aminomethyl group of OKADA as a substituent in the compound and method of SEELA because both OKADA and SEELA teach 7-substituted deazaguanosine structures and SEELA teaches that alkyl substituents may be added to the 7-position.

Allowable Subject Matter

Claim 12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach or fairly suggest the compound of instant claim 12. The prior art of OKADA and NISHIMURA teach a deazaguanosine substituted with an aminomethyl group, but do not teach any other substituted alkyl group. The prior art of SEELA teaches that a variety of groups may be substituted on a deazaguanosine, including amine containing groups and carboxyl groups, but does not teach hydroxyalkyl groups. None of the prior art provides a motivation for substituting a hydroxymethyl group for the aminomethyl of OKADA or NISHIMURA.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marjorie A. Moran whose telephone number is (571) 272-0720. The examiner can normally be reached on Mon. to Wed, 7:30-4; Thurs 7:30-6; Fri 7-1 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward can be reached on (571)272-0722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marjorie A. Moran
Primary Examiner
Art Unit 1631

Marjorie A. Moran
4/29/04

mam